

Purpose

This report examines the relationship between socioeconomic status, as defined by a free-and-reduced lunch proxy variable, and student growth percentiles by elementary, middle, and high school grade levels for math, reading, and writing.

Method

For this descriptive study, median and adequate growth percentiles were calculated for all students with valid CSAP growth percentiles during 2011-2012 based on free and reduced lunch eligibility (i.e. yes or no) by content area (math, reading, and writing) and by grade level (i.e. elementary, middle, or high school). Comparisons were made between median growth percentiles for each educational level by free and reduced lunch status (i.e. using Mann-Whitney *U*-tests). As a final measure of relationship, point-biserial correlations were calculated between student growth percentiles and free-reduced lunch eligibility status. A brief discussion of findings is included.

Results

Math Median Growth Percentiles by School Level and Free/Reduced Lunch Status (2012)

Elementary School Level

| FRL Status | Count | MGP | AGP | Diff. |
|--------------|-------|-----|-----|-------|
| Free/Reduced | 56467 | 47 | 62 | -15 |
| Not Eligible | 73610 | 54 | 39 | 15 |

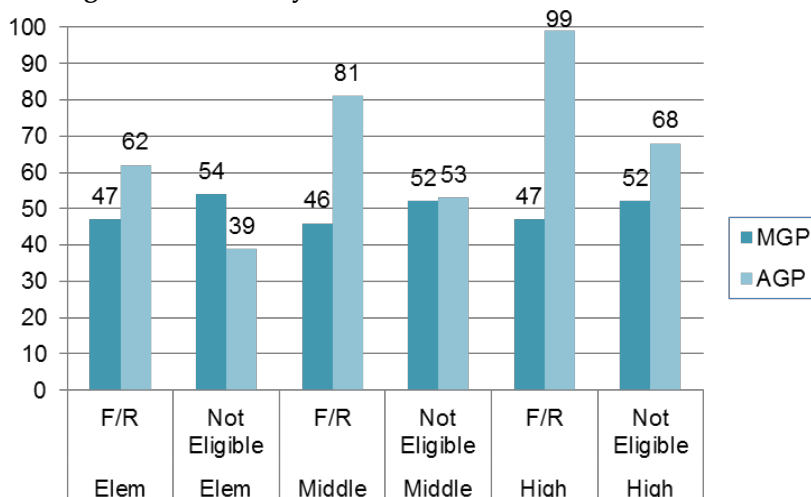
Middle School Level

| FRL Status | Count | MGP | AGP | Diff. |
|--------------|-------|-----|-----|-------|
| Free/Reduced | 68301 | 46 | 81 | -35 |
| Not Eligible | 92198 | 52 | 53 | -1 |

High School Level

| FRL Status | Count | MGP | AGP | Diff. |
|--------------|-------|-----|-----|-------|
| Free/Reduced | 37170 | 47 | 99 | -52 |
| Not Eligible | 67836 | 52 | 68 | -16 |

Fig 1. Math MGP by FRL Status and Educational Level



Note. Diff. indicates absolute difference between MGP and AGP. A positive value indicates that MGP > AGP.

Math Summary of Findings

- The median growth percentile for student's that were not free and reduced lunch eligible exceeds that of free and reduced lunch students by five to seven percentile points at all grade levels. In addition, adequate growth percentiles were substantially less (i.e. 23 to 31 percentile points) for not eligible students compared to FRL students for all grade levels.
- Mann-Whitney *U*-tests indicate statistically significant differences in the growth distributions between FRL/non-eligible students at all educational levels for math (p 's < .001). Also, the obtained point-biserial correlations for each of the grade levels were statistically significant but weak (r 's = -.056 to -.081, p 's < .01).

Reading Median Growth Percentiles by School Level and Free/Reduced Lunch Status (2012)

Elementary School Level

| FRL Status | Count | MGP | AGP | Diff. |
|--------------|-------|-----|-----|-------|
| Free/Reduced | 54999 | 47 | 42 | 5 |
| Not Eligible | 73387 | 54 | 20 | 30 |

Middle School Level

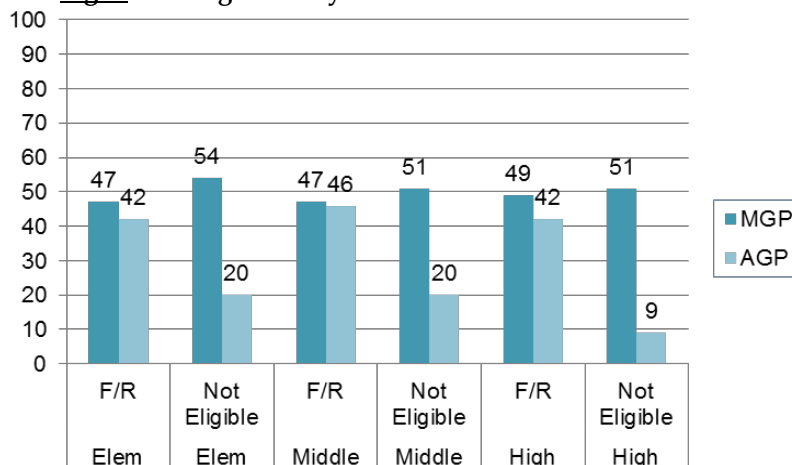
| FRL Status | Count | MGP | AGP | Diff. |
|--------------|-------|-----|-----|-------|
| Free/Reduced | 68256 | 47 | 46 | 1 |
| Not Eligible | 92194 | 51 | 20 | 31 |

High School Level

| FRL Status | Count | MGP | AGP | Diff. |
|--------------|-------|-----|-----|-------|
| Free/Reduced | 36985 | 49 | 42 | 7 |
| Not Eligible | 67999 | 51 | 9 | 42 |

Note. Diff. indicates absolute difference between MGP and AGP. A positive value indicates that MGP>AGP.

Fig 2. Reading MGP by FRL Status and Educational Level



Reading Summary of Findings

- The median growth percentile for student's that were not free and reduced lunch eligible exceeds that of free and reduced lunch students by two to seven percentile points at all grade levels. In addition, adequate growth percentiles were substantially less (i.e. 22 to 33 percentile points) for not eligible students compared to FRL students for all grade levels.
- Mann-Whitney *U*-tests indicate statistically significant differences in the growth distributions between FRL/non-eligible students at all educational levels for reading (p 's<.001). Also, the obtained point-biserial correlations for each of the grade levels were statistically significant but weak (r 's=-.020 to -.080, p 's<.01).

Writing Median Growth Percentiles by School Level and Free/Reduced Lunch Status (2012)

Elementary School Level

| FRL Status | Count | MGP | AGP | Diff. |
|--------------|-------|-----|-----|-------|
| Free/Reduced | 55265 | 47 | 56 | -9 |
| Not Eligible | 73466 | 53 | 34 | 19 |

Middle School Level

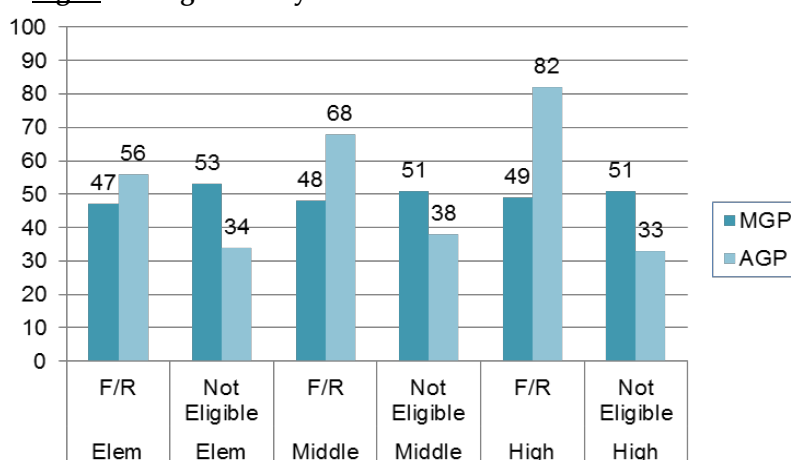
| FRL Status | Count | MGP | AGP | Diff. |
|--------------|-------|-----|-----|-------|
| Free/Reduced | 68196 | 48 | 68 | -20 |
| Not Eligible | 92090 | 51 | 38 | 13 |

High School Level

| FRL Status | Count | MGP | AGP | Diff. |
|--------------|-------|-----|-----|-------|
| Free/Reduced | 37071 | 49 | 82 | -33 |
| Not Eligible | 67885 | 51 | 33 | 18 |

Note. Diff. indicates absolute difference between MGP and AGP. A positive value indicates that MGP>AGP.

Fig 3. Writing MGP by FRL Status and Educational Level



Writing Summary of Findings

- The median growth percentile for student's not free and reduced lunch eligible exceeds that of free and reduced lunch students by two to six percentile points at all grade levels. In addition, adequate growth percentiles were substantially less (i.e. 22 to 49 percentile points) for not eligible students compared to FRL students for all grade levels.
- Mann-Whitney *U*-tests indicate significant differences in the growth distributions between FRL/non-eligible students at all educational levels for writing ($p's < .001$). Also, the obtained point-biserial correlations for each of the grade levels were statistically significant but weak ($r's = -.017$ to $-.074$, $p's < .01$).

Discussion

The results of this descriptive analysis reveal consistent differences in median and adequate growth percentiles between free/reduced and not free/reduced lunch eligible students for all content areas and grade levels. The median growth percentiles tend to be lower for free lunch students compared to non-eligible students. Similarly, the adequate growth percentiles tend to be greater for free and reduced lunch students. This finding indicates that not only are free-reduced students displaying lower growth percentiles but they are also requiring substantially higher growth rates to maintain or reach proficiency within three years or by 10th grade. This finding is not unexpected as adequate growth percentiles are related to achievement levels which is correlated with poverty. In addition, median growth percentiles involve comparisons to academic peers and not just free and reduced lunch eligible peers. Thus, it may be expected that lower median growth percentiles would result.

This report fails to identify the reasons for the observed, ubiquitous differences that exist between the two disaggregated groups (i.e. FRL and non-eligible students). It would be erroneous to assume that the observed differences in growth percentiles are solely, if at all, caused by student characteristics associated with the free-reduced lunch designation (i.e. with free and reduced lunch status serving as a proxy for poverty). It has been shown, in a substantial body of empirical research, that a wide range of factors contribute to differences in status and observed growth for highly impacted students. For example, in schools with larger percentages of impoverished students the experience levels of teachers is more likely to be limited to three or fewer years¹. Also, such differences exist for principals, who serve as the instructional leaders of schools¹. In addition, the available resources available to schools serving highly impacted populations may be lower than those allocated to more affluent schools. For example, schools with high concentrations of poverty, in one study, had the fewest school library resources available for students². Another report, released by the Building Educational Success Together (BEST), concludes that schools with greatest needs often see the least investment in school construction³.

Future reports will examine other demographic factors that may be related to observed student growth percentiles. In addition, for free and reduced lunch status, further analysis of school level factors that contribute to the differences described in this report may be conducted.

¹Clotfelter, Charles T., Helen F. Ladd, Jacob L. Vigdor, and Justin Wheeler. 2007. High-Poverty Schools and the Distribution of Teachers and Principals. *North Carolina Law Review*, 85, 1346-1379

²Ribesh, S., Gavigan, K. and Dickinson, G. (2011). The Access Gap: Poverty and Characteristics of School Library Media Centers. *Library Quarterly*, 81, 2, 143-160.

³Building Education Services Together (BEST). (2006). A Decade of Growth and Disparity: Public School Construction 1995-2004. Retrieved previously, December 21, 2006, from, <http://www.edfacilities.org/pubs/GrowthandDisparity.pdf>